

Appln. No. 09/787,348
Amdt. dated February 11, 2004
Reply to Office Action of November 14, 2003
Docket No. 6009-4601

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Withdrawn) A method for manufacturing a suspension bar for a permanent cathode used in an electrolysis of metals, wherein the suspension bar is made of a rigid metal outer jacket and a highly electroconductive inner part inside it, after which the outer jacket is removed at least from one end of the bar, wherein a refined steel outer jacket and a highly electroconductive core are in close contact with each other wherein the parts of the bar are joined to each other by drawing, wherein the core is connected to the outer jacket by placing a core preform inside the outer jacket and by drawing an arbor through the preform in a drawing machine.
2. (Withdrawn) The method according to claim 1, wherein the highly electroconductive core is copper.
3. (Withdrawn) The method according to claim 1, wherein the highly electroconductive core is aluminum.
4. (Canceled)
5. (Withdrawn) The method according to claim 1, wherein a steel bar is used as the arbor.
6. (Withdrawn) The method according to claim 5, wherein the steel bar is left inside the highly conductive core.

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7. (Withdrawn) The method according to claim 18, wherein the core is connected to the outer jacket by placing a core preform inside the outer jacket and by pressing the ends of the core, so that the core is expanded tight to the jacket.

8. (Canceled)

9. (Withdrawn) The method according to claim 8, wherein casting is made using the outer jacket as the mould into which the molten core metal is poured.

10. (Withdrawn) The method according to claim 20, wherein in order to obtain a metallurgical bond between the jacket and the core, the core preform is placed in solid form inside the outer jacket and then the core is melted inside the outer jacket which remains in sufficiently solid form.

11. (Currently amended) The method according to claim 19, further comprising preheating wherein the outer jacket tube is preheated before casting molten core inside the outer jacket tube bonding.

12. (Currently amended) The method according to claim 19, further comprising heating wherein the outer jacket tube and the core are preheated during bonding casting molten core inside the outer jacket tube.

13. (Currently amended) The method according to claim 19, further comprising heating the outer jacket tube and the core are preheated after bonding after casting molten core inside the outer jacket tube.

14. (Currently amended) The method according to claim 19, wherein further comprising holding the outer jacket tube is held in a vertical position with the bottom end closed when molten core metal is put cast into the outer jacket tube.

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15. (Currently amended) The method according to claim 19, wherein further comprising casting ~~is made~~ by immersing the outer jacket into a melt of the core metal.

16. (Currently amended) The method according to claim 15, wherein further comprising immersing the outer jacket tube is immersed in the melt essentially in a horizontal position, and wherein with the ends of the jacket are being closed and making a sufficient number of holes are made in the upper part of the jacket for pouring feeding the melt into and releasing air from the outer jacket tube.

17. (Currently amended) The method according to claim 15, wherein further comprising immersing the outer jacket is immersed in the melt essentially in a vertical position, wherein with the bottom end of the jacket is being closed.

18. (Withdrawn) A method for manufacturing a suspension bar for a permanent cathode used in an electrolysis of metals, wherein the suspension bar is made of a rigid metal outer jacket and a highly electroconductive inner part inside it, after which the outer jacket is removed at least from one end of the bar, wherein a refined steel outer jacket and a highly electroconductive core are in close contact with each other wherein the parts of the bar are joined to each other by upsetting.

19. (Currently amended) A method for manufacturing a suspension bar for a permanent cathode used in an electrolysis of metals, ~~wherein the suspension bar is made of a rigid metal outer jacket and a highly electroconductive inner part inside it, after which the outer jacket is removed at least from one end of the bar, wherein comprising forming the suspension bar from refined steel an outer jacket tube consisting essentially of acid-resistant steel or stainless steel and a highly electroconductive core consisting essentially of copper or aluminum are in close~~

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~~contact with each other wherein the parts of the bar are joined to each other by casting, and wherein in order to obtain a metallurgical bond between the jacket and the core, the core is fixedly attached to the jacket by casting it~~ the core in molten form inside the solid outer jacket tube for a time sufficient to form a metallurgical bond between the outer jacket and the core, and then machining the outer jacket partially open from at least from one end of the suspension bar to expose the core.

20. (Withdrawn) A method for manufacturing a suspension bar for a permanent cathode used in an electrolysis of metals, wherein the suspension bar is made of a rigid metal outer jacket and a highly electroconductive inner part inside it, after which the outer jacket is removed at least from one end of the bar, wherein a refined steel outer jacket and a highly electroconductive core are in close contact with each other wherein the parts of the bar are joined to each other by melting.

21. (Withdrawn) The method according to claim 18, wherein the highly electroconductive core is copper.

22. (Currently Amended) The method according to claim 19, wherein the highly electroconductive core is copper and the outer jacket consists essentially of acid-resistant steel is stainless steel.

23. (New) The method according to claim 19, wherein the highly electroconductive core is aluminum and the outer jacket consists essentially of stainless steel.

24. (New) The method according to claim 19, further comprising coating the outer surface of the outer jacket tube with graphite to prevent the molten core from adhering to the outer surface of the outer jacket.

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25. (New) The method according to claim 16, further comprising making one hole in the upper side at either end of the outer jacket tube.

26. (New) The method according to claim 16, further comprising holding the outer jacket tube in an inclined position to ensure the molten core fills the inside of the outer jacket tube.
